NOAA's National Environmental Satellite, Data, and Information Service
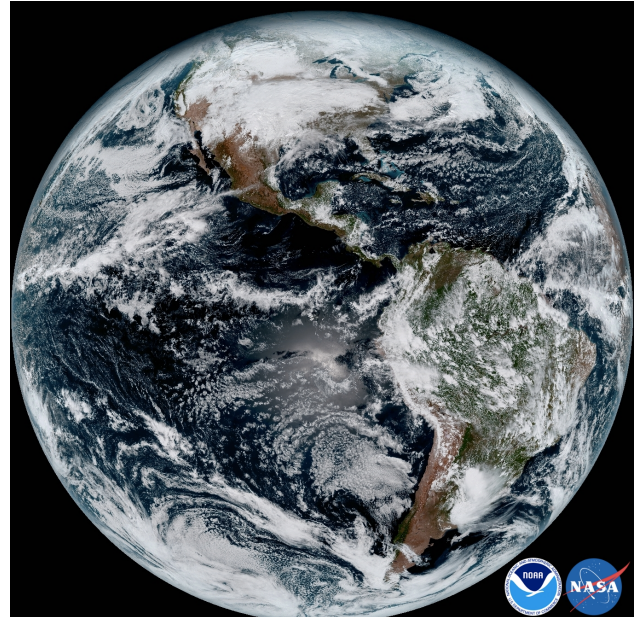## The nation's operational weather satellite and information service

NOAA's National Environmental Satellite, Data, and Information Service (NESDIS) collects, processes, distributes, and archives observations of the atmosphere, oceans, and the sun. NOAA satellites and the archives within the National Centers for Environmental Information (NCEI) provide much of the environmental intelligence that is the foundation of NOAA's unique capacity for practical weather prediction. Investments are necessary today to ensure NOAA's fleet of observational platforms are available in the future to meet our mission and support the products and services of tomorrow.

NOAA Satellites Serve the Nation

- NOAA satellites enable accurate weather forecasts and warnings used by Federal, State, and local officials, and the general public, to make decisions to safeguard lives and property in advance of severe weather.
- Data from NOAA satellites and NCEI are used by all DoD services to support their global mission and operational readiness.
- Telecommunications and public utilities use warnings from the Space Weather Prediction Center to protect electric grids and communications assets from solar flares and geomagnetic storms.
- Since 1982, more than 7,500 boaters, aviators, hikers, and other recreational enthusiasts in the U.S. (and over 39,000 persons worldwide) have been rescued with the aide of the satellite-assisted search and rescue (SARSAT) program.

GOES 16 provides four times greater the image resolution than other spacecraft, allowing forecasters to pinpoint the location of severe weather leading to more accurate and timely forecasts, watches and warnings.

Foundational Data That Support NOAA's Mission

NESDIS supports NOAA Line Offices and their programs. Select examples include:

- **National Weather Service** uses satellite data in its numerical weather prediction models to develop short- and long-term forecasts. NESDIS also provides data to support operational space weather warnings and forecasts.
- **Oceanic and Atmospheric Research** uses satellite data to conduct research and modeling relating to environmental trends such as drought, stratospheric ozone, air quality from wildland fires, and seasonal climate events.
- **National Marine Fisheries Service** uses sea surface temperature data from NOAA's satellites to monitor the distribution of fishery stocks.
- **National Ocean Service** uses satellite data and NCEI to monitor and predict ocean and coastal phenomena, such as harmful algal blooms.
- **Office of Marine and Aviation Operations** use data from NOAA satellites to safely operate their ships and aircraft.

NOAA's GOES-16 satellite launched on November 16, 2016 and is the country's most sophisticated weather observation spacecraft,

For more information, please visit: www.nesdis.noaa.gov

Launch of GOES-16 Satellite Provides Enhanced Image Resolution to Significantly Improve Weather Forecasting Capability

NOAA successfully launched the GOES-16 satellite on November 19, 2016. GOES-16 provides continuous imagery and atmospheric measurements of the Earth's Western Hemisphere that NOAA uses to generate weather forecasts for the public. GOES-16 includes an operational lightning mapper that has improved tornado warning lead times and the Advanced Baseline Imager that provides imagery five times faster than the current capability and offers higher-resolution images than its GOES predecessors. These crisper, clearer images allow forecasters to monitor weather and other environmental phenomena such as smoke, ice, and volcanic ash at a much more detailed level. GOES-16 also monitors space weather, providing critical data for utility companies, satellite operators and other customers. GOES-16 is the first spacecraft in the GOES-R Series of four new NOAA geostationary weather satellites.

Launch of Jason-3 Satellite, the Newest Ocean Monitoring Satellite, Improves Hurricane Forecasting

To improve NOAA's ability to predict devastating hurricanes, the strength of tropical cyclones, and other severe weather events before they arrive onshore, NOAA successfully launched the Jason-3 satellite on January 17, 2016. During the 2016 hurricane season, Jason-3, and its predecessor Jason-2, provided NOAA with ocean altimetry satellite data, including vital ocean temperature information, used to predict if and when a storm will strengthen. Data from Jason-3 are being used for other scientific, commercial, and operational applications as well, including El Niño and La Niña forecasting, coastal forecasting for oil spills and harmful algal blooms, coastal modeling for marine mammal and coral reef research, ocean wave height modeling for commercial vessel operators, and forecasting currents for commercial shipping.

DSCOVR Becomes the Nation's First Operational Space Weather Satellite

The DSCOVR weather satellite became NOAA's primary operational space weather data source - the first operational space weather satellite in United States history - on July 27, 2016. DSCOVR provides real time, accurate alerts and warnings of space weather, which has the potential to disrupt transportation systems, power grids, telecommunications, GPS, and other major public infrastructure systems. For example, aircrafts that fly polar routes now include space weather pre-briefs to stay informed of potential impacts to critical communication and navigation systems due to geomagnetic storms.

SARSAT Saves 307 Lives in 2016

NOAA's Search and Rescue Satellite Aided Tracking (SARSAT) played a vital role in the rescue of 307 people in the United States, the highest total in more than five years. NOAA satellites are part of the international SARSAT system, known as COSPAS-SARSAT. This system uses a network of spacecraft to detect and locate distress signals quickly from emergency beacons and that information is then relayed to a Rescue Coordination Center, operated by either the U.S. Air Force for land rescues, or the U.S. Coast Guard for water rescues.

NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION

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